

Analysis of Vegetative and Reproductive Traits Revealed a Positive Transgression and Strong Correlations Between Traits in a Population of Recombinant Inbred Lines in Groundnut (*Arachis hypogaea* L.)

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In this study, a population of 254 recombinant inbred lines derived from a cross between Fleur 11 and 73-30 was evaluated for agromorphological traits and fresh seed dormancy. The experimental design consisted of an alpha lattice with 17 blocks of 17 entries each, with three replications. Parameters studied were pod weight per plant, number of two-seeded pods per plant, seed weight, percentage of sound mature kernels, sound kernel weight per plant, pod length, above-ground biomass per plant, and percentage of fresh seed germinated. All traits exhibited positive transgression, indicating complementary gene action. Significant and positive correlation ranging from 0.26 to 0.90 was observed between pod weight and secondary traits such as sound kernel weight, one seed weight, number of two-seeded pods per plant, percentage of sound mature kernels, and pod length. The germination rate of fresh seed was not significantly correlated to any agromorphological trait. Lines C1P5-4-7, C1P5-4-5 and C1P28-4-2 had the highest pod weight per plant. Lines C1P28-4-2, C1P11-5-4 and C1P32-2-2 exhibited the highest two-seeded pod number per plant. Lines C1P5-4-7 and C1P24-8-3 had the highest sound mature kernel weight. Lines C1P24-8-3, C1P11-14-3, C1P37-4-4, C1P37-7-9, C1P11-10-1 and C1P23-4-2 had the highest percentage of sound mature kernels, and lines C1P31-11, C1P23-5-4 and C1P23-5-5 had the highest weight per seed. Seven lines (C1P33-6'-1, C1P33-2-2, C1P30-9-8, C1P24-1-1, C1P18-6-6, C1P23-4-1 and C1P18-6-5) exhibited a fresh seed germination percentage similar to that of the fresh seed dormant parent 73-30. From a breeding view, these lines could be used as parental lines to develop new lines with higher yield and with fresh seed dormancy using a marker assisted selection scheme.